

Amendments to Specification:

Please replace the paragraph beginning at page 8, Line 5 with the following paragraph:

The final objective stage 70 of SEM 50 is surrounded by a multiple stage, non-contact vacuum seal 65. As shown in greater detail in Figs. 2a and 2b, in this embodiment, seal 65 is comprised of four concentric metal rings 62, 64, 66 and 68. In this embodiment the rings are fabricated from anodized aluminum (Al_2O_3), although other materials such as titanium could be used. Proper attachment of these rings to the SEM ensures that their lower surfaces 75 are coplanar within approximately one micron. Vacuum stage seal 65 has four vacuum stages of decreasing pressure. Stage 82, the outer stage is evacuated by a standard vacuum pump to a pressure of roughly 1 Torr. Stage 84 is similarly evacuated by a standard vacuum pump to a pressure of approximately 0.1 Torr. Stage 86 is similarly evacuated by turbo-vacuum pump 67 (fig. 1) to a pressure of 0.05 Torr. Stage 88, the fourth and innermost stage, is coupled to turbo-vacuum pump 71 (Fig. 1) that lowers the pressure of stage 88 to 5×10^{-5} Torr. Overpressure vent 72 creates a ring of high pressure air around the entire set of vacuum seals. The overpressure prevents moisture from migrating into the inner vacuum zones. Ambient pressure vent 74 creates a ring of ambient air pressure between the overpressure created by vent 72 and first vacuum stage 82. The ambient pressure zone prevents the high pressure gas discharged from vent 72 from migrating further inward towards the vacuum zones and increasing the vacuum leakage rate.